



[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 34 and 45

[Docket No.: FAA-2012-1333; Amendment No. 34-5A]

RIN 2120-AK15

Exhaust Emissions Standards for New Aircraft Gas Turbine Engines and Identification Plate for Aircraft Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; technical amendment.

SUMMARY: The FAA is making technical changes to a final rule published in the Federal Register on December 31, 2012. That final rule amended the emission standards for certain turbine engine powered airplanes to incorporate the standards promulgated by the United States Environmental Protection Agency (EPA) on June 18, 2012. The final rule contained six minor technical errors: one in the authority citation, and five in tables listing the emissions standards for engines manufactured on and after July 18, 2012. In addition, we are correcting an error in a definition that existed before the final rule and was overlooked. The FAA is issuing this technical amendment to correct these errors.

DATES: This amendment is effective [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].

FOR FURTHER INFORMATION: For technical questions concerning this action, contact Aimee Fisher, Emissions Division (AEE-300), Office of Environment and Energy, Federal Aviation Administration, 800 Independence Avenue, SW, Washington, DC 20591; telephone (202) 267-7705; e-mail Aimee.Fisher@faa.gov.

For legal questions concerning this action contact Karen Petronis, International Law, Legislation and Regulations Division (AGC-200), Office of the Chief Counsel, Federal Aviation Administration, 800 Independence Avenue, SW, Washington, DC 20591; telephone (202) 267-3073, e-mail Karen.Petronis@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

Section 231(a)(2)(A) of the Clean Air Act (CAA) (42 USC 7571) directs the Administrator of the EPA to propose aircraft emission standards applicable to the emission of any air pollutant from classes of aircraft engines which, in the EPA Administrator's judgment, causes or contributes to air pollution that may reasonably be anticipated to endanger public health or welfare. These emission standards have been promulgated by the EPA in 40 CFR part 87.

Section 232 of the CAA (42 USC 7572) then directs the FAA to prescribe regulations to ensure compliance with the EPA's standards. The FAA has promulgated these emission standards in 14 CFR part 34, and in the engine marking requirements in part 45.

The EPA initially regulated gaseous exhaust emissions, smoke and fuel venting from aircraft in 1973, with occasional revision. Since the EPA's adoption of the initial regulations, the FAA has taken subsequent action to ensure that the regulations in 14 CFR are kept current with the EPA's standards.

On July 27, 2011, the EPA proposed new aircraft engine emission standards for oxides of nitrogen (NO_x), compliance flexibilities, and other regulatory requirements for aircraft turbofan or turbojet engines with rated thrusts greater than 26.7 kilonewtons (kN)

(76 FR 45012). The EPA also proposed adopting the gas turbine engine test procedures of the International Civil Aviation Organization (ICAO). The final rule adopting these proposals was published on June 18, 2012 (77 FR 36342), and was effective July 18, 2012.

On December 31, 2012, the FAA published a final rule with a request for comments (77 FR 76842) adopting the EPA's new emissions standards in part 34. Although the EPA's NPRM presented an opportunity to comment on the proposed regulations and the EPA addressed them in its final rule, the FAA sought public comment on its final rule.

The FAA received three comments on the final rule. Concurrent with the publication of this technical amendment, the FAA is publishing a disposition of comments to address the comments received. No changes are being made to the final rule based on those comments, and the comments did not affect the corrections adopted here.

Discussion of Technical Amendments

1. Authority Citation

In the amendatory language of the final rule, we inadvertently changed the authority citation for section 34 by replacing the semicolon after "42 U.S.C 4321 *et seq.*, 7572" with the letter "1." No change to the authority citation was intended. We are correcting this error and returning the authority citation to what was in place prior to the final rule.

2. § 34.1 - Definitions

In the definition of “Standard day conditions,” the value for “specific humidity” is incorrectly listed as “0.00 kg H₂O/kg dry air.” The correct value is “0.00634 kg H₂O/kg dry air.” This error has existed in § 34.1 for some time, and the FAA is unable to determine when this error was introduced. In contrast, the EPA’s rule correctly defines the term.

The FAA can find no evidence that the existence of this error has caused any significant adverse impact on engine manufacturers. These manufacturers have been using the EPA’s definition to establish compliance with the exhaust emission requirements. However, any inconsistency between the regulations of the EPA and the FAA could cause confusion. The FAA intended to correct this error in the final rule, but inadvertently left this change out.

Since this correction is not expected to impose any additional burden on the manufacturers subject to these regulations, the FAA is adopting this change in this document.

3. § 34.23 - *Exhaust Emission Standards for Engines Manufactured On and After July 18, 2012*

In § 34.23, there are two tables that were published with errors that create inconsistencies with similar tables in the EPA’s rule. In the NPRM, the FAA stated its intent to adopt the standards promulgated by the EPA. The FAA is correcting these errors.

A table in § 34.23(a)(2) entitled “Tier 6 Oxides of Nitrogen Emission Standards for Subsonic Engines” was published with two errors in the column labeled “Rated output rO (kN).” The FAA is correcting these errors as follows:

Current Language	Correction
$26.7 < rO < 89.0$	$26.7 < rO \leq 89.0$
$rO > 89.0$	No change
$26.7 < rO \leq 89.0$	No change
$rO > 89.0$	No change
All	$rO \geq 26.7$

In § 34.23(b)(1), the table entitled “Tier 8 Oxides of Nitrogen Emission Standards for Subsonic Engines” was published with three errors in the column labeled “Rated output rO (kN).” The FAA is correcting these errors as follows:

Current Language	Correction
$26.7 < rO < 89.0$	$26.7 < rO \leq 89.0$
$rO > 89.0$	No change
$26.7 < rO < 89.0$	$26.7 < rO \leq 89.0$
$rO > 89.0$	No change
All	$rO \geq 26.7$

List of Subjects in 14 CFR Part 34

Air pollution control, Aircraft.

The Amendments

In consideration of the foregoing, the Federal Aviation Administration amends Chapter I of Title 14 Code of Federal Regulations as follows:

**PART 34 – FUEL VENTING AND EXHAUST EMISSION REQUIREMENTS
FOR TURBINE ENGINE POWERED AIRPLANES**

1. The authority citation for part 34 is revised to read as follows:

Authority: 42 U.S.C 4321 *et seq.*, 7572; 49 U.S.C. 106(g), 40113, 44701-44702, 44704, 44714.

Subpart A – General Provisions

2. Amend § 34.1 by revising the definition for “Standard day conditions” to read as follows:

§ 34.1 Definitions.

* * * * *

Standard day conditions means the following ambient conditions:
temperature=15 °C, specific humidity=0.00634 kg H₂O/kg dry air, and pressure=101.325 kPa.

* * * * *

Subpart C — Exhaust Emissions (New Aircraft Gas Turbine Engines)

3. Amend § 34.23 by revising paragraphs (a)(2) and (b)(1) to read as follows:

§ 34.23 Exhaust Emission Standards for Engines Manufactured on and after July 18, 2012.

* * * * *

(a) * * *

(2) Except as provided in §§ 34.9(b) and 34.21(c), for Classes TF, T3 and T8 engines manufactured on and after July 18, 2012, and for which the first individual production model was manufactured on or before December 31, 2013 (Tier 6):

Tier 6 Oxides of Nitrogen Emission Standards for Subsonic Engines

Class	Rated pressure ratio - rPR	Rated output rO (kN)	NO _x (g/kN)
TF, T3, T8	$rPR \leq 30$	$26.7 < rO \leq 89.0$	$38.5486 + 1.6823 (rPR) - 0.2453 (rO) - (0.00308 (rPR) (rO))$
		$rO > 89.0$	$16.72 + 1.4080(rPR)$
	$30 < rPR < 82.6$	$26.7 < rO \leq 89.0$	$46.1600 + 1.4286 (rPR) - 0.5303 (rO) + (0.00642 (rPR) (rO))$
		$rO > 89.0$	$-1.04 + 2.0 (rPR)$
	$rPR \geq 82.6$	$rO \geq 26.7$	$32 + 1.6 (rPR)$

* * * * *

(b) * * *

(1) For Classes TF, T3 and T8 engines of a type or model of which the first individual production model was manufactured after December 31, 2013 (Tier 8):

Tier 8 Oxides of Nitrogen Emission Standards for Subsonic Engines

Class	Rated pressure ratio - rPR	Rated output rO (kN)	NO _x (g/kN)
TF, T3, T8	$rPR \leq 30$	$26.7 < rO \leq 89.0$	$40.052 + 1.5681 (rPR) - 0.3615 (rO) - (0.0018 (rPR) (rO))$
		$rO > 89.0$	$7.88 + 1.4080 (rPR)$
	$30 < rPR < 104.7$	$26.7 < rO \leq 89.0$	$41.9435 + 1.505 (rPR) - 0.5823 (rO) + (0.005562 (rPR) (rO))$
		$rO > 89.0$	$-9.88 + 2.0 (rPR)$
	$rPR \geq 104.7$	$rO \geq 26.7$	$32 + 1.6 (rPR)$

* * * * *

Issued under authority of 49 U.S.C. 106 and section 232 of the Clean Air Act (42 U.S.C. 7571) in Washington, DC, on October 1, 2013.

Lirio Liu

Director, Office of Rulemaking

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